

EPA WIFIA Program Application - Additional Information

Miami-Dade Water and Sewer Department Ocean Outfall Discharge Reduction and Resiliency Enhancement Project

Section A: Prospective Borrower Information

1. This information is provided in the Letter of Interest.
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10. The Miami-Dade Water and Sewer Department is the largest utility in Florida and the southeastern United States, and ranks among the 10 largest utilities in the nation. It is a department of Miami-Dade County, a large metropolitan home rule government. The County is overseen by an elected mayor, the Honorable Carlos Gimenez, and a Board of County Commissioners elected from 13 districts. The County provides regional services, such as water and sewer, transportation, elections, airport, and seaport spanning 34 incorporated cities within the County, plus municipal services within unincorporated portions of the County. The Water and Sewer Department, led by Director Lester Sola, has a staff of approximately 2,600 employees who provide approximately 320 million gallons per day of drinking water and process about 300 million gallons per day of wastewater. The Department is in the process of executing a \$13.5 billion capital plan over the next 15 to 20 years to substantially reconstruct and upgrade aging infrastructure, provide for economic development, and comply with a variety of federal and state regulatory mandates. This requires extensive oversight of Department staff and a significant cadre of design and construction management consultants. This capital development model has been used successfully in the completion of a \$600 million treatment upgrade to the South District Wastewater Treatment Plant, completed ahead of schedule and under budget. All of the projects being undertaken in the capital program include design attention to mitigating the risks posed by climate change, particularly sea level rise, anticipated over the asset life of the projects. A table of organization for Miami-Dade County, and staffing table of organization for the Department are provided as Attachment A10.
11. This information is provided in the Letter of Interest.
12. This information is provided in the Letter of Interest.

Section B: Project Plan

1. This letter of interest is for the Miami-Dade Water and Sewer Department Ocean Outfall Discharge Reduction and Resiliency Enhancement Project, which consists of the following three projects:
 - CE-2: Central District Wastewater Treatment Plant Municipal Wells
 - NE-2: North District Wastewater Treatment Plant Municipal Wells
 - SE-2: South District Wastewater Treatment Plant Municipal Wells
2. A link to the Miami Dade Multi-Year Capital Improvement Plan is available at the following link: <http://www.miamidade.gov/water/capital-improvements-plan.asp> . The Ocean Outfall Legislation icon on this page links to a page with the County's OOL Compliance Plan.
3. The Miami-Dade Water and Sewer Department (WASD) North District Wastewater Treatment Plant (NDWWTP), Central District Wastewater Treatment Plant (CDWWTP), and South District Wastewater Treatment Plant (SDWWTP) currently provide treatment for about 300 million gallons per day (mgd) of wastewater. North and Central utilize ocean outfalls for disposal of about 200 MGD of treated wastewater. This project will enable the routine elimination of discharges to the ocean and compliance with State of Florida Ocean Outfall Legislation (OOL) to reduce nutrient loadings by redirecting effluent discharges from the ocean outfalls to injection wells. Compliance with the OOL requires the use Class I injection wells as the primary wastewater disposal method by 2025. Nutrients from the ocean outfalls will be diverted to Class I injection wells and ocean outfall discharge will be discontinued, except during peak flow events. The proposed projects include construction of four new wells at the NDWWTP, seven new wells at the CDWWTP, and three new wells at the SDWWTP. At the NDWWTP, WASD has successfully initiated a reduction in nutrient loading to the ocean to date by increasing the diversion of effluent to existing deep injection wells with plans to add additional injection wells. At the CDWWTP, where there is no existing injection well system, the new injection well facilities will immediately result in a reduction of nutrient loading to the ocean outfall, whereas at SDWWTP, the urgency is driven by the need to meet increased peak flows where there is no outfall for backup disposal. The project will be constructed in phases, with the additional injection wells coming into service between 2019 and 2024. All of these facilities will be constructed to new design standards that incorporate storm surge protection and sea level rise consequences that may occur over the expected asset life of these facilities, thereby improving resiliency of the system.
4. In 2008, revisions were made to the Florida Statutes (F.S.) Title XXIX, Section 403.086 and 2013, (Chapters 2008-232 and 2013-31, respectively), herein termed Ocean Outfall Legislation, requiring the Miami Dade Water and Sewer Department (WASD) to begin a process to eliminate the use of the North District Wastewater Treatment Plant and Central District Wastewater Treatment Plant ocean outfalls by the end of 2025, except under certain defined conditions. The law also mandates a minimum amount of reclaimed water reuse and nutrients reductions prior to 2025. WASD will meet the advanced wastewater treatment and management requirements of the OOL (403.086(9)(d), F.S.) by reducing cumulative loadings discharged to the outfall between December 31, 2008 and December 31, 2025. This reduction will be achieved by redirecting effluent discharges nutrients from ocean outfalls to injection wells through the OOL Program.

The OOL Program is a major strategic capital investment into the future of wastewater management for Miami-Dade County and the scope and magnitude is reflected in the proposed projects. The goal is to reach compliance by reducing future cumulative loads by an equivalent of approximately 59.9 million pounds of Total Nitrogen (TN) and approximately 2.9 million pounds of Total Phosphorus (TP). Municipal wells will be installed at the North District Wastewater Treatment Plant, Central District Wastewater Treatment Plant, and South District Wastewater Treatment Plant Central District Wastewater Treatment Plant for the disposal of air scrubber wastewater, landfill leachate, and sludge dewatering centrate to significantly reduce the nutrient concentrations in the effluent disposed of through the outfalls.

This project will result in significant increased availability of reclaimed water for potential reuse and flexibility of the system to avoid public health impacting sanitary sewer overflows from its wastewater collection and transmission system. The proposed project will also provide increased capacity for the management of peak wet weather flows to the North District Wastewater Treatment Plant, Central District Wastewater Treatment Plant, and South District Wastewater Treatment.

5. This information is provided in the Letter of Interest.
6. This information is provided in the Letter of Interest.
7. This information is provided in the Letter of Interest.
8. This information is provided in the Letter of Interest.
9. This information is provided in the Letter of Interest.
10. The proposed project schedules are provided in Attachment B10.
11. An analysis was completed in support of the proposed project in Attachment B11 - Ocean Outfall Program Compliance Plan 2016 Update. 2016. Miami-Dade Water and Sewer Department.
12. The findings of alternatives analysis and rationale for the proposed project are presented in Attachment B12, Ocean Outfall Legislation Compliance Plan; Miami-Dade Water and Sewer Department; June 2013.
13. The proposed project master plan is described in the Attachment B11 - Ocean Outfall Program Compliance Plan 2016 Update. 2016. Miami-Dade Water and Sewer Department.
14. In 2008, revisions were made to the Florida Statutes (F.S.) Title XXIX, Section 403.086 and 2013, (Chapters 2008-232 and 2013-31, respectively), herein termed the Ocean Outfall Legislation (OOL), requiring the Miami Dade Water and Sewer Department (WASD) to begin a process to eliminate the use of the North District Wastewater Treatment Plant and Central District Wastewater Treatment Plant ocean outfalls by the end of 2025, except under certain defined conditions. WASD will meet the advanced wastewater treatment and management requirements of the OOL (403.086(9)(d), F.S.) by reducing cumulative loadings discharged to the outfall between December 31, 2008 and December 31, 2025. The planning phase of the proposed projects have been initiated, and a task authorization is currently pending approval for the design and permitting of the injection wells at the North District

Wastewater Treatment Plant, Central District Wastewater Treatment Plant and South District Wastewater Treatment Plant. To expedite the permitting process, WASD has initiated several processes to standardize well designs and specifications, permit applications, formats and supporting documentation, and to establish a cooperative relationship with the reviewing agency, both during the permitting process and during construction. Because this construction is occurring at sites that have a number of existing construction and operation permits, it is expected that permitting will not be a problem. Community involvement with these projects has already occurred through the legislative and budgetary processes, and will continue to occur.

15. This information is provided in the Letter of Interest.
16. The three injection well projects consist entirely of below ground installations, capped with a wellhead valve. As such, the environmental review process for the projects is regulated almost exclusively by the Underground Injection Control (UIC) Program. In the State of Florida, the Florida Department of Environmental Protection (FDEP) has been delegated primacy for implementation of the program. The permitting requirements for Class I construction and testing permit applications are detailed in Florida Administrative Code Rule 62-528 and prescribe well construction standards, general conditions for permits, draft permit conditions, public notice procedures, public meeting requirements, financial assurance procedures, evaluation of hydrogeological data, monitoring requirements, and plugging and abandonment standards. Through this rigorous permitting, construction, and testing program, Class I wells are required to demonstrate confinement within a geologically stable area with no evidence of either geologic pathways (e.g., faults, fractures or dissolution cavities) or anthropogenic conduits (e.g., mine shafts or existing or improperly abandoned wells) within the area of review that could endanger an overlying Underground Source of Drinking Water (USDW).

Table B-16 summarizes the steps and planning-level durations in the permitting process. The timeline assumes that the submitted permit application is complete with required signatures, certification of financial assurance, the fee, and all other required design and technical supporting documentation. The review cycle and other public noticing requirements are outlined below.

Table B-16. Class I Construction and Testing Permitting Process

Activity	Duration
Application Package Preparation and Submittal, Including a Pre-application Meeting or Teleconference	60 days
FDEP Review and Request for Additional Information	30 days
Request for Additional Information Response, Review and Draft Permit Preparation	30 days
Agency Review Draft Permit	15 days

Table B-16. Class I Construction and Testing Permitting Process

Activity	Duration
Publication of Notice of Draft Permit	15 days
Notice Period prior to Public Meeting	30 days
Notice of Intent to Issue Permit preparation	14 days
Publication of Notice of Intent to Issue Permit	7 days
Petition Period	14 days
Final Permit Issuance	14 days
Typical Timeframe for Permitting	~7+ months after submittal of the permit application

Currently, WASD is in the process of authorizing a contracted hydrogeologic consulting firm to begin the permitting process for all three injection well projects. Two of the three projects include wells sited at the existing Central District Wastewater Treatment Plant (CE-2 project) and South District Wastewater Treatment Plant (SE-2 project). The third project at the North District Wastewater Treatment Plant (NE-2 project) includes wells on a county-owned parcel to the south of the existing North District Wastewater Treatment Plant for which an environmental review of adjacent wetland boundaries is underway for the wastewater treatment plant facility expansion.

17. Additional permitting and approval requirements are detailed in Attachment B11: Ocean Outfall Legislation Program; Compliance Plan 2016 Update. Miami-Dade Water and Sewer Department. June 2016. WASD and the OOL Program are actively conducting public outreach at two levels, specifically tailored to residents and businesses. Staff participate in community meetings throughout the county to inform residents of improvements in their area and respond to resident questions, and are working with various agencies to increase opportunities for employment for residents under program projects. To promote local and small/disadvantaged business participation on projects, WASD and OOL Program are conducting contractor training, hosting project information sessions to address upcoming work, and hosting networking events for small businesses.
18. This information is provided in the letter of interest.
19. This information is provided in the letter of interest.
20. This information is provided in the letter of interest.

Section C: Project Operations and Maintenance Plan

1. The estimated useful life of the injection wells to be constructed as a part of the three projects is 50 years or more. The Miami-Dade Water and Sewer Department owns and operates 17 existing injection wells at their South District Wastewater Treatment Plant, 10 of which were constructed between 1976 and 1981 and therefore approximately 35 years old at the time of the most recent mechanical integrity tests in 2013—an EPA mandated 5-year testing protocol to demonstrate internal and external integrity of the injection wells. All the wells passed pressure tests and were found to be in good condition. Based on these results and the lifespan of other steel-cased deep injection wells in south Florida, there is no indication that the wells not continue to demonstrate mechanical integrity and function as intended for another 15 to 20 years or more. Completed Mechanical Integrity Test reports are provided in Attachment C1.
2. Operation and Maintenance manuals for each of the three plants are required to be provided to the Florida Department of Environmental Protection as a part of the request to commence operational testing following completion of construction. WASD currently operates Class I injection well systems at the North District Wastewater Treatment Plant and South District Wastewater Treatment Plant and maintains Operations and Maintenance manuals for these systems. Copies of the South District Wastewater Treatment Plant Operations and Maintenance manuals are voluminous hardcopy files maintained at the respective plants. WASD will provide a copy as a follow up to this letter if requested. The Operations and Maintenance manual for Central District Wastewater Treatment Plant will be similar in form and content, and the manuals at South District Wastewater Treatment Plant and North District Wastewater Treatment Plant will be updated to incorporate the new injection wells during construction. Maintenance of injection wells generally relates to wellhead mechanical and instrumentation components and a 5-year mechanical integrity test, specifications for which have been provided in Attachment C2a. Additional operational and maintenance costs of the injection well systems are funded from operating revenues and included in the cost recovery requirements of the wastewater system when setting rates. Additionally, during the operation permit application and renewal processes, WASD must complete a Certificate of Financial Assurance, demonstrating the financial ability to plug and abandon the injection wells in the event of non-compliance. A copy of this certification for the South District Wastewater Treatment Plant injection well system is attached for reference (Attachment C2b).
3. This information is provided in the letter of interest.

Section D: Financing Plan

1. In accordance with Master Bond Ordinance #93-134; the payment of principal and of interest on senior debt obligations is secured by pledged of and lien on Pledged Revenues, which consists of Net Operating Revenues of the Miami-Dade Water and Wastewater Utility Systems. Debt Service Coverage of the FY 2016-17 Adopted Budget and Multi-Year Capital Plan shows current and future operating revenue stream needed to recover operating and capital financed costs. D1 Attachment

The Miami Dade Board of County Commissioners annually approve an Adopted Budget and Multi-Year Capital Plan that includes the operating and capital budgets for the Miami-Dade Water and Sewer Department. The Department's budgets are approved for one fiscal year although future years of projected revenues and expenses are also presented.

Link: <http://www.miamidade.gov/budget/current.asp>

MIAMI-DADE WATER & SEWER DEPARTMENT DEBT SERVICE COVERAGE - ADOPTED BUDGET BOOK FY 2015 Through FY 2022								
	<u>FY 2014-15</u> <u>Actual</u>	<u>FY 2015-16</u> <u>Projected</u>	<u>FY 2016-17</u> <u>Adopted</u>	<u>FY 2017-18</u> <u>Future</u>	<u>FY 2018-19</u> <u>Future</u>	<u>FY 2019-2020</u> <u>Future</u>	<u>FY 2020-2021</u> <u>Future</u>	<u>FY 2021-2022</u> <u>Future</u>
<u>Revenues Available for Debt Service</u>								
Operating Revenues	613,316	652,029	683,343	739,279	798,954	863,747	941,192	1,005,975
Investment Earnings (Excluding Income from Construction Funds)	1,198	1,574	1,427	2,113	2,319	3,117	3,560	3,560
Net Rate Stabilization Fund Withdrawals/Deposits>								
Total Revenues Available for Debt Service	614,514	653,603	684,770	741,392	801,273	866,864	944,752	1,009,535
Operating and Maintenance Expenses	368,907	401,512	429,828	448,700	468,510	489,232	511,106	533,466
Net Revenues Available for Debt Service	245,607	252,091	254,942	292,692	332,763	377,633	433,646	476,070
<u>Primary Debt Service Coverage Ratio</u>								
Net Revenues Available for Debt Service	245,607	252,091	254,942	292,692	332,763	377,633	433,646	476,070 (a)
Debt Service Requirements on Outstanding Bonds	153,211	157,036	161,194	161,195	159,813	159,832	159,863	159,860 (b)
Primary Debt Service Coverage Ratio ("a" divided by "b")	1.60	1.61	1.58	1.82	2.08	2.36	2.71	2.98
Required Primary Debt Service Coverage Ratio ("e")	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25 (e)
<u>Subordinate Obligations Requirement</u>								
Net Revenues Available for Debt Service	245,607	252,091	254,942	292,692	332,763	377,633	433,646	476,070 (a)
Less: Maximum Principal & Interest on All Bonds	161,195	161,195	165,669	190,086	222,728	257,273	295,318	339,425
Adjusted Net Revenues Available for Debt Service	84,412	90,896	89,273	102,606	110,035	120,360	138,328	136,645 (c)
Debt Service & Reserve Requirements on Subordinate Obligations	18,081	16,819	15,975	15,138	14,333	13,521	13,497	12,954 (d)
Subordinate Obligations Requirement Ratio ("c" divided by "d")	4.67	5.40	5.59	6.78	7.68	8.90	10.25	10.55
Required Subordinate Obligations Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<u>State Revolving Fund Loan Debt Service Coverage Ratio</u>								
Net Revenues Available for Debt Service	245,607	252,091	254,942	292,692	332,763	377,633	433,646	476,070 (a)
Less: Revenue Required for Primary Debt Coverage ("b" multiplied by "e")	191,514	196,295	201,493	201,494	199,766	199,790	199,829	199,825
Adjusted Net Revenues Available for Subordinate Debt Service	54,093	55,796	53,450	91,198	132,996	177,843	233,818	276,245 (f)
Coverage Requirements on Subordinate Obligations	18,081	16,819	15,975	15,138	14,333	13,521	13,497	12,954 (g)
State Revolving Fund Loan Debt Service Coverage Ratio ("f" divided by "g")	2.99	3.32	3.35	6.02	9.28	13.15	17.32	21.33
Required Subordinate Obligations Coverage Ratio	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15

(1) For Coverage purposes the Debt Service Requirements are reported on Cash Basis

2. Table D-2 (below) provides the individual and total cost estimates for the three injection well projects included in this letter of interest. The cost breakdown includes the construction estimate, construction contingency, construction escalation, unforeseen conditions, authorized reimbursable expenses, engineering, services during construction, combined construction management, project management, and program management, planning, permitting, design management, project management during construction, program contingency and WASD overhead. Each of these costs fall within the outline of eligible costs described in the WIFIA Handbook, Section 2.6, Eligible Costs.

Table D-2 Individual and Total Injection Wells Costs

No.	Description	Construction Estimate	Construction Contingency (10-15%)	Construction Escalation	Construction Bid Amount	Traffic Control (3%)	Mob De-Mob (5%)	Construction Sub-Total
CE-2	CDWWTP - Municipal Injection Wells	\$ 47,200,000	\$ 4,720,000	\$ 4,979,429	\$ 56,899,429	\$ -	\$ -	\$ 56,899,429
NE-2	NDWWTP - Municipal Injection Wells	\$ 26,600,000	\$ 2,660,000	\$ 4,222,589	\$ 33,482,589	\$ -	\$ -	\$ 33,482,589
SE-2	SDWWTP - Municipal Injection Wells	\$ 19,300,000	\$ 1,930,000	\$ 964,483	\$ 22,194,483	\$ -	\$ -	\$ 22,194,483
	Total	\$ 93,100,000	\$ 9,310,000	\$ 10,166,501	\$ 112,576,501	\$ -	\$ -	\$ 112,576,501

Table D-2 Individual and Total Injection Wells Costs (Continued)

No.	Unforeseen Conditions (10%)*	WASD Contract Amount	Authorized Reimbursable (3%)*	Engineering Survey/Geo/Env (5-10%)*	Engineering Services During Construction (3%)*	Construction Mgmt, Project Mgmt, Program Mgmt	Planning	Permitting
CE-2	\$ 5,192,000	\$ 62,091,429	\$ 1,713,360	\$ 1,142,240	\$ 1,713,360	\$ 2,577,665	\$ 241,907	\$ 98,281
NE-2	\$ 2,926,000	\$ 36,408,589	\$ 965,580	\$ 643,720	\$ 965,580	\$ 1,430,702	\$ 261,454	\$ 82,434
SE-2	\$ 2,123,000	\$ 24,317,483	\$ 700,590	\$ 467,060	\$ 700,590	\$ 889,370	\$ 78,875	\$ 30,713
	\$ 10,241,000	\$ 122,817,501	\$ 3,379,530	\$ 2,253,020	\$ 3,379,530	\$ 4,897,737	\$ 582,236	\$ 211,428

Table D-2 Individual and Total Injection Wells Costs (Continued)

No.	Project Management/Design Management (2%)*	PM Services During Construction /SDC	Land Acquisition (0-2%)*	Direct Cost Total	WASD Stores OH <\$5M (9.4%)*	Program Contingency (0-14%)*	Indirect Cost Sub-Total	Dept Overhead (10.6%)*	Gran Total w/o PMO
CE-2	\$ 75,012	\$ 1,063,488	\$ -	\$70,716,743	\$ -	\$ 3,286,866	\$74,003,608	\$ 6,968,155	\$ 80,971,764
NE-2	\$ 73,307	\$ 682,989	\$ -	\$41,514,354	\$ -	\$ 1,864,588	\$43,378,942	\$ 3,952,927	\$ 47,331,869
SE-2	\$ 71,034	\$ 669,456	\$ -	\$27,925,172	\$ -	\$ 1,348,034	\$29,273,206	\$ 2,857,833	\$ 32,131,040
	\$ 219,354	\$ 2,415,933	\$ -	\$140,156,268	\$ -	\$ 6,499,488	\$146,655,757	\$ 13,778,915	\$ 160,434,672

- The FY 2016-17 Adopted Budget and Multi-Year Capital Plan, Capital Budget Summary shows the Revenue and Expenditures scheduled at a summarized Project Level. The Ocean Outfall Legislation Program project #: 962670 includes Injection Wells sub-projects – Wastewater Treatment Plants: CE-2: CDWWTP Municipal Wells; NE-2: NDWWTP Municipal Wells; SE-2: SDWWTP Municipal Wells.

FY 2016 - 17 Adopted Budget and Multi-Year Capital Plan

FUNDED CAPITAL PROJECTS

(dollars in thousands)

OUTFALL LEGISLATION

PROJECT #: 962670

DESCRIPTION: Elimination of outfall flows to the ocean
LOCATION: Systemwide
Various Sites

District Located:
District(s) Served:

Systemwide
Systemwide

REVENUE SCHEDULE:	PRIOR	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	FUTURE	TOTAL
*Future WASD Revenue Bonds	41,675	11,793	44,789	52,572	63,206	72,848	107,726	3,255,334	3,649,943
State Revolving Loan Wastewater Program	19,888	0	0	0	0	0	0	0	19,888
WASD Revenue Bonds Sold	18,525	0	0	0	0	0	0	0	18,525
Wastewater Connection Charges	6,049	0	0	0	0	0	0	0	6,049
TOTAL REVENUES:	86,137	11,793	44,789	52,572	63,206	72,848	107,726	3,255,334	3,694,405
EXPENDITURE SCHEDULE:	PRIOR	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	FUTURE	TOTAL
Construction	59,113	38,817	44,789	52,572	63,206	72,848	107,726	3,255,334	3,694,405
TOTAL EXPENDITURES:	59,113	38,817	44,789	52,572	63,206	72,848	107,726	3,255,334	3,694,405

Estimated Annual Operating Impact will begin in FY 2018-19 in the amount of \$270,000

*WIFIA funding 49% funding of the total Injection Wells costs would reduce future WASD Revenue Bonds need

- Details related to existing Revenues Bonds and State Revolving Loans are included in attachment D4.
- Three Years of Comprehensive Annual Financial Reports included in the link below and attachments D5a-c.

Link: <http://www.miamidade.gov/water/publications-reports.asp#2>

6. Payment of principal and of interest on senior debt obligations is secured by a pledge of and lien on Pledged Revenues, which consists of Net Operating Revenues of the Miami-Dade Water and Wastewater Utility Systems. See Attachment D10.

Schedule of Rates, Fees and Charges Link: <http://www.miamidade.gov/aopdfdoc/aopdf/pdffiles/IO4-110.pdf>

7. Existing Revenue and Refunding Bonds Debt Service Schedule by Series, Existing State Revolving Loan Debt Service Schedule by Series, Proposed Series 2018 Revenue Bond, and Outfall Legislation, Injection Well System sub-project future funding Proposed are included in attachment D7.
8. Attachment D8 details Sources and Uses by Funding Sources at the sub-project level.
9. Miami-Dade Water and Sewer Department, FY 2016-17 Business Plan, FY 2016-17 Adopted Budget and Financial Plan are included in attachments D9 a-c.
10. FY 2017 Adequacy of Rates and Charges Report included in attachment D10.
11. No, the Department will consult with the State Revolving Fund authority to secure SRF funding.

Section E: Selection Criteria

1. This project is of regional significance and protective of public health and the environment. Reducing nutrient loading, eliminating the standard use of ocean outfalls except under certain defined conditions, and reducing sanitary sewer overflows will directly benefit the 2.7 million residents of Miami-Dade County and the environment at a local and regional basis. Providing infrastructure for future wastewater flows will also support increased economic growth well into the future.
2. WIFIA funding will have a direct, tangible, and positive impacts on the project schedule. Financing for the proposed projects is based on a rate increase schedule, which generates funding for municipal bonds for construction. Rates are set on an annual basis as the budget is approved. If alternative funding were available, the proposed projects and associated phases could be accelerated ahead of the current schedule and offset potential delays.
3. This project demonstrates a utility's ability to integrate deep injection wells into large wastewater treatment systems to increase system efficiency. More broadly, this project advances knowledge of the use and application of Class I deep injection wells on a scale unprecedented in the State of Florida and likely throughout the nation. Furthermore, the installation of extra-large diameter injection wells on this scale is a specific innovation made possible only by the unique geology and hydrogeology in south Florida, which allows 1) large volumes of treated wastewater to be injected thousands of feet below land surface and below underground sources of drinking Water from wells centrally located at the wastewater plants, not spread out throughout the collection system,

and 2) injection to occur at relatively low pressures, equating to energy efficient operation. The transfer of knowledge of the injection well program implementation, technology and specific science of the hydrogeology of the region is a priority for WASD. On March 31 and April 1, 2017, for example, WASD hosted the Florida Association of Professional Geologists (FAPG) and the Southeast Geological Society (SEGS) to learn about the projects and the results of the first two injection wells already constructed at the Central District Wastewater Treatment Plant (<http://segs.org/wp/wp-content/uploads/2012/02/SEGS-FAPG-Virginia-Key-Field-Trip-INFO-Notice-1.pdf>).

4. WASD is taking measures to protect against extreme weather events. A description of the planning of the proposed project to address protection against extreme weather events is presented in Attachment B20 - Design Guide for Hardening Wastewater Treatment Facilities against Flooding from Surge, Sea Level Rise, and Extreme Rainfall. 2015. Miami-Dade Water and Sewer Department.
5. Three primary environmental and public health benefits are associated with the subject projects: 1) The injection well projects will provide the North, Central, and South Wastewater Treatment Plants with increased disposal capacities to reduce the frequency and severity of sanitary sewer overflows and wet weather flows from the wastewater collection and transmission system, thereby conferring direct public health and environmental benefits. 2) WASD considers the protection of the Biscayne aquifer as its highest priority. This potable water source has been designated a sole source aquifer by the U.S. Environmental Protection Agency (EPA) and is afforded additional protection as the primary source of drinking water for Miami-Dade County under the Sole Source Aquifer Program authorized by the 1974 Safe Drinking Water Act. Deep injection wells that are not constructed properly could allow upward migration of waste streams into the Biscayne aquifer. The rigorous, Underground Injection Control permitting and testing program described in B.7., above, for all the wells in the injection well projects, are designed to protect underground sources of drinking water, including the Biscayne aquifer. 3) Injection well technology may provide the most environmentally responsible alternative to ocean outfall. Reuse requires a backup disposal option (e.g., injection wells) for wet weather conditions or at any other time when reuse customers cannot accept additional water. Potential pathogens and endocrine disruptors in treated wastewater continue to be studied; and for the magnitude of the flows in consideration, deep injection well technology is the only disposal alternative that eliminates direct or indirect exposure of the public to treated wastewater following discharge. Additionally, energy consumption needed for nutrient reduction treatment and conveyance for discharge to surface water bodies (canals) would be significantly higher than for injection well operation.
6. The proposed project does not serve energy exploration or production areas.
7. As noted in Section C, item 5, the Biscayne aquifer in Miami Dade County is a sole source aquifer. This aquifer is being impacted by salt water intrusion from the Atlantic Ocean; sea level rise is projected to further impact this source of drinking water in the

decades to follow. The Biscayne aquifer is unconfined and therefore subject to recharge and contamination by infiltrating surface water. Both through responsible and heavily regulated drilling and, indirectly, by increasing plant capacities and collection system flexibility, the injection well projects will mitigate additional, and controllable, adverse impacts to this critical groundwater resource.

8. This project helps address critical municipal and state priorities. In 2008, revisions were made to the Florida Statutes (F.S.) Title XXIX, Section 403.086 and 2013, (Chapters 2008-232 and 2013-31, respectively), herein termed the Ocean Outfall Legislation (OOL), requiring the Miami Dade Water and Sewer Department (WASD) to begin a process to eliminate the use of the North District Wastewater Treatment Plant (North District Wastewater Treatment Plant) and Central District Wastewater Treatment Plant (Central District Wastewater Treatment Plant) ocean outfalls by the end of 2025, except under certain defined conditions. Diverting nutrients from the ocean outfalls prior to 2025 is required for compliance with the OOL advanced wastewater treatment provision. WASD will implement the OOL Program to reduce nutrient loadings and redirect effluent discharges from the ocean outfalls to injection wells.
9. The Department financing plan includes public financing.
10. The proposed project does not have another source of federal assistance.
11. The proposed projects have been initiated and a task authorization is currently pending approval for the design and permitting of the injection wells. At the North District Wastewater Treatment Plant, WASD has successfully initiated a reduction of its nutrient loading to the ocean to date by increasing the diversion of effluent into deep injection wells with plans to add additional injection wells. At the North District Wastewater Treatment Plant, the injection wells are scheduled to be constructed by May 2023 and operational by August 2024. At the Central District Wastewater Treatment Plant, the injection wells are scheduled to be constructed by November 2020 and operational by October 2024. At the South District Wastewater Treatment Plant, the injection wells are scheduled to be operational by October 2019, immediately following completion of construction.
12. The very purpose of the proposed projects is to replace an ocean outfall wastewater disposal system with a newer technology, consisting of injection well wastewater disposal systems. Florida Statutes (F.S.) Title XXIX Section 403.086 contains the OOL that affects WASD. This law requires southeast Florida utilities to eliminate the use of ocean outfalls and install a replacement method of wastewater disposal by the end of 2025.
13. Areas of economically stressed WASD customers within Miami-Dade County are described in Attachment E13: Socio-Economic Conditions in Miami-Dade's Targeted Urban Areas 2007-2011. Miami-Dade County. 2013.

The OOL Program is regulatory driven and a major strategic capital investment into the future of wastewater management for Miami-Dade County, and the scope and magnitude is reflected in the proposed project. Estimated annual wastewater rate increases are set annually as part of the Miami-Dade County's budgeting process. Rate increases include preliminary estimates for compliance with the OOL Program. WIFIA funding would assist in relieving the financial burden to be incurred by WASD customers, including economically stressed communities, and defer the economic impact of compliance with the OOL Program's capital costs. Further details on the OOL Program expenditures are provided in Attachment B12, Ocean Outfall Legislation Compliance Plan; Miami-Dade Water and Sewer Department; June 2013. Please refer to Section D, item 7, for additional information regarding financial sources for the proposed project.